

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed November 22, 2004. Reconsideration and allowance of the application and pending claims 1-44 are respectfully requested.

I. Allowable Subject Matter

Applicant appreciates the Examiner's indication that claims 8-44 are allowable over the prior art of record.

Applicant also appreciates the Examiner's indication that claims 2-4 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In that it is believed that every rejection has been overcome, it is submitted that each of the claims that remains in the case is presently in condition for allowance.

II. Claim Rejections - 35 U.S.C. § 102(b)

A. Statement of the Rejection

Claims 1 and 7 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by *Koyama et al.* ("*Koyama*," U.S. Pat. No. 5,384,501). Applicant respectfully traverses this rejection.

B. Discussion of the Rejection

It is axiomatic that "[a]nticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W. L. Gore & Associates, Inc.*

v. *Garlock, Inc.*, 721 F.2d 1540, 1554, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983)(emphasis added). Therefore, every claimed feature of the claimed invention must be represented in the applied reference to constitute a proper rejection under 35 U.S.C. § 102(b).

Independent Claim 1 and Dependent Claim 7

In the present case, not every feature of the claimed invention is represented in the *Koyama* reference. As recited in independent claim 1, Applicant claims (with emphasis added):

1. An amplifier system, comprising:
a variable gain amplifier having:
differential pair transistors;
a degeneration element coupled to the differential pair transistors;
and
a collector load of a similar type to the degeneration element,
wherein the collector load is coupled to the differential pair transistors,
wherein a gain of the variable gain amplifier is determined by a physical dimension ratio of the collector load to the degeneration element for a differential input control voltage equal to zero volts.

As recited in independent claim 7, Applicant claims (with emphasis added):

7. The system of claim 1, ***wherein the differential input control voltage is derived from a single ended voltage and a bandgap voltage.***

Applicant respectfully submits that *Koyama* does not disclose the emphasized claim features. The Office Action alleges the following:

For a differential input control voltage equal to zero i.e. the voltage applied to element 23 at node 24, it is an inherent characteristic that the physical dimension ratio of the collector load to the degeneration element “determines the gain” (See column 7 around line 63). The voltage at the node 24 qualifies as a “differential input control voltage” for its value controls the gain of the differential arrangement as is clearly recited above. The differential input control voltage of is clearly derived from a single ended voltage and a “bandgap voltage” for the differential input voltage of *Koyama* is a single ended voltage and it inherently must be derived from a

“bandgap voltage”, i.e. threshold voltage in order for the differeintial [sp] voltage to control the FETs 18 and 23 otherwise the recited control would not be occur.

Applicant respectfully disagrees, and respectfully submits that the finding with regard to claim 1 that “it is an inherent characteristic that the physical dimension ratio of the collector load to the degeneration element ‘determines the gain’” (emphasis added) does not flow from the teachings of *Koyama*. For example, the circuit shown in Figure 3 of *Koyama* is a known circuit (sometimes referred to as a back-gating technique), in which the substrate in the FET acts as a second gate which changes the threshold voltage of device 23 compared to device 18. Thus, the resistance is not inherently the ratio of the dimensions, since such an assertion fails to consider the substrate. It is also worthy to note that when the gate of device 18 is being increased, the gate of device 23 must be decreased in the opposite direction. Having different source-substrate voltages in device 18 compared to device 23 makes the change different between the two voltages, which is very difficult to realize exactly or precisely. Thus, *Koyama* does not disclose, teach, or suggest “***wherein a gain of the variable gain amplifier is determined by a physical dimension ratio of the collector load to the degeneration element for a differential input control voltage equal to zero volts,***” as recited in independent claim 1.

Because independent claim 1 is allowable over *Koyama*, dependent claims 2-7 are allowable as a matter of law for at least the reason that the dependent claims 2-7 contain all elements of their respective base claim. See, e.g., *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Additionally, Applicant respectfully submits that dependent claim 7 is allowable on independent grounds. In particular, the Applicant respectfully submits that the finding with regard to claim 7 that a “‘bandgap voltage’ for the differential input voltage of *Koyama* is a single ended voltage and it inherently must be derived from ‘bandgap voltage’” (emphasis added) does not flow from the teachings of *Koyama*. For instance, Applicant respectfully submits that the voltage to control gate of device 23 is unlikely to be derived only from a bandgap. There must be additional circuitry to extract the average voltage of the output for device 23 and the average of the input voltage for device 18. If the average voltage is high, then the gate voltage should be increased by that much compared to the gate of device 18. Thus, *Koyama* does not disclose “*wherein the differential input control voltage is derived from a single ended voltage and a bandgap voltage,*” as recited in dependent claim 7.

Due to the shortcomings of the *Koyama* reference described in the foregoing, Applicant respectfully asserts that *Koyama* does not anticipate Applicant’s claims. Therefore, Applicant respectfully requests that the rejection of these claims be withdrawn.

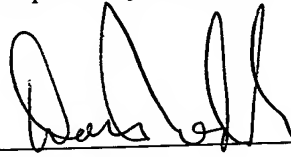
III. Claim Rejections - 35 U.S.C. § 103(a)

Claims 5 and 6 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Koyama*. Applicant respectfully traverses this rejection. Because independent claim 1 is allowable over *Koyama*, Applicant respectfully submits that claims 5 and 6, which depend from independent claim 1, are allowable as a matter of law.

CONCLUSION

Applicant respectfully submits that Applicant's pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'David Rodack', is written over a horizontal line.

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